

Please cancel claim 59.

## REMARKS

Applicants do not traverse the restriction requirement as it pertains to Group IV. Claims 29-32, 37, 40, 43, 46, 49, and 52, have been canceled. Claim 54 has been amended; it is believed that 59 is the only claim, now, in claims 54-60 which pertains to Group IV and this also has been canceled.

The amended claims are now limited to glucanases. These are enzymes which cleave glucans (i.e., polymers of glucose) in various ways. There appears to be no reason arbitrarily to divide the glucans into separate categories.

First, by way of clarification, it has come to the attention of the undersigned that debranching enzymes, the subject of formerly independent claim 33, are themselves glucanases. Therefore, claim 33 has been made dependent on claim 1. Claims dependent from claim 33, claims 35, 38, 41, 44, 48, 50, 53, and 60 have been retained, although their subject matter is dominated by corresponding claims dependent on claim 1 (claims 36, 39, 42, 45, 48, 51, and 58). Second, applicants understand that the terminology is often confusing due to the persistence of trivial names such as  $\alpha$ -amylase,  $\beta$ -amylase,  $\gamma$ -amylase and amyloglucosidase or glucoamylase. It may be helpful if the glucanases are classified logically as according to the diagram enclosed as Exhibit A. As seen, the glucanases either cleave the straight-chain portion of glucans or, in the case of starch, cleave at the branch points. The enzymes which cleave starting at the termini, the "exo" glucanases and those that cleave in the middle of the chain, the "endo" glucanases can be further characterized by the type of linkage that is cleaved. Both  $\beta$ -amylase and  $\gamma$ -amylase are exo-1,4- $\alpha$ -D-glucanases.  $\beta$ -Amylase cleaves two glucose units at once;  $\gamma$ -amylase only one.  $\alpha$ -Amylase is the corresponding endoglucanase that cleaves at  $\alpha$ -1,4-D linkages.

There appears to be no logical reason to split the exoglucanases into 1,3- $\alpha$  and 1,3- $\beta$  cleaving forms, while leaving endoglucanases of both types unrestricted from each other. Similarly, there is no reason to consider exo and endo separate categories; the types of glucanase could also be diagrammed as shown in Exhibit B1 and B2, depending on what the arbitrarily chosen primary basis for division is.

Respectfully, applicants believe there is no basis for arbitrarily segmenting the glucanases as proposed by the restriction requirement and reconsideration to examine all of Groups I, II, III and V together is respectfully requested.

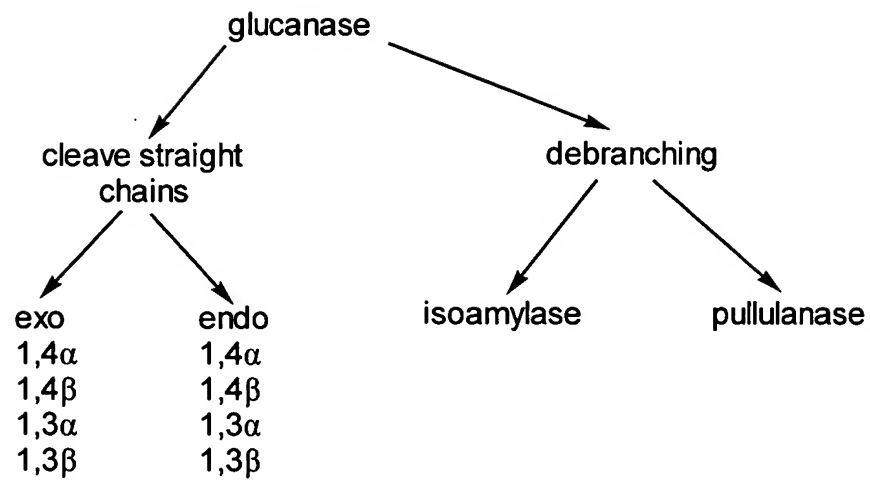
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Respectfully submitted,

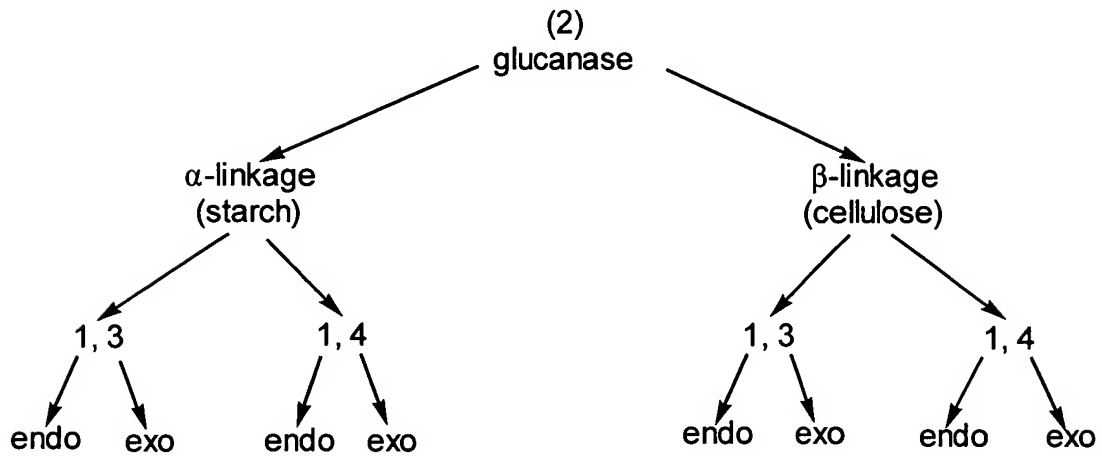
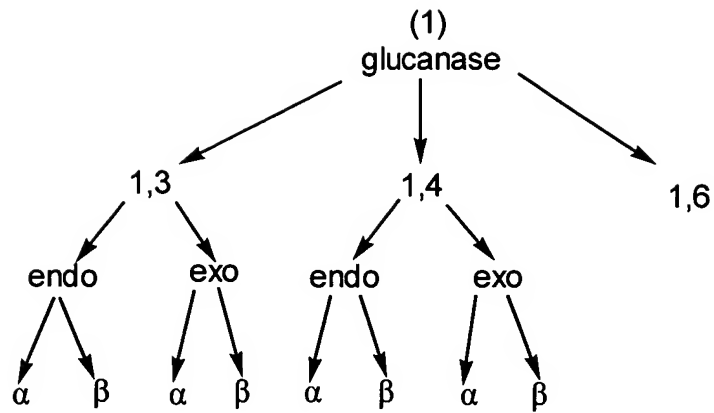
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## Exhibit A



## Exhibit B